COMPLETE LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended): A distributed generation power system comprising: [controller for distributing power among]

a plurality of energy components, said plurality of energy components including a gas turbine driving an AC generator to produce AC, and said plurality of energy components including an AC utility; and [, said]

a power controller comprising:

a DC bus; and

a plurality of power converters, each of which is connected between one of said energy components and said DC bus and is responsive to said power controller, wherein said power controller [provides a distributed generation power system by controlling] controls the way each energy component sinks or sources power and said DC bus is regulated, said plurality of power converters comprising:

a first power converter connected between said AC generator and said DC bus; and

a second power converter connected between said AC utility and said DC bus.

2. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein each of said power converters operates as a customized

bi-directional switching converter configured, under the control of said power controller, to provide an interface for said energy component to said DC bus.

3. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein each of said power converters comprises:

a power switching system; and

a processing system for providing control to said power switching system.

4. (currently amended): The distributed generation power [controller] system claimed in claim 3, wherein said processing system further comprises:

a signal processor; and

a central processing unit for providing control to said signal processor.

5. (currently amended): The distributed generation power [controller] system claimed in claim 4, wherein said central processing unit reconfigures said power converter into different configurations for different modes of operation.

6. (currently amended): The distributed generation power [controller] system claimed in claim 3, wherein said power switching system comprises a plurality of insulated gate bipolar transistor switches.

7. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein said controller regulates DC bus voltage independently of turbine speed.

8. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein said plurality of energy components includes an energy storage device.

9. (currently amended): The distributed generation power [controller] system claimed in claim 8, wherein said energy storage device comprises a flywheel.

10. (currently amended): The distributed generation power [controller] system claimed in claim 8, wherein said energy storage device comprises a battery.

11. (currently amended): The distributed generation power [controller] system claimed in claim 8, wherein said energy storage device comprises an ultracap.

12. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein during a utility start up mode of operation, said second power converter applies power from said AC utility to said DC bus for conversion by said first power converter into power required by said gas turbine to startup.

13. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein said gas turbine is controlled in a local feedback loop to maintain said turbine revolutions per minute (RPM).

14. (currently amended): The distributed generation power [controller] system claimed in claim 1, wherein during a utility start up mode of operation, one of said power converters isolates said DC bus so that said first power converter provides the required starting power from said DC bus to said gas turbine.

15. (currently amended): A gas turbine system, comprising:

a gas turbine engine;

a load; and

a power controller for converting electricity from said turbine engine into regulated DC and then to AC electricity, wherein said power controller includes an engine power conversion in communication with said turbine engine, and a utility power conversion in communication with said load and a CD bus.

16. (currently amended): The gas turbine system claimed in claim 15, further comprising:

a fuel metering system in communication with an energy reservoir controller and said power controller.

17. (currently amended): The gas turbine system claimed in claim 15, wherein said power controller provides a distributed generation power system utilizing said engine power conversion and said utility power conversion.

18. (currently amended): The gas turbine system claimed in claim 15, wherein said engine power conversion and said utility power conversion operate as customized bi-directional switching converters, under control of said power controller, to provide an interface for said turbine engine and said load to said DC bus.

19. (currently amended): A method of controlling the distribution of power in a system including a plurality of energy components, said plurality of energy components including a gas turbine driving an AC generator to produce AC, and said plurality of energy components including an AC utility, said power controller using a computer including a digital signal processor comprising the steps of:

interfacing a first power inverter between a DC bus and said AC generator coupled to said gas turbine;

interfacing a second power inverter between said DC bus and said AC utility;

controlling the way each of said energy components sinks or sources power; and

controlling the way said DC bus is regulated responsive to operation of each of said energy components.

20. (previously presented): The method claimed in claim 19, further comprising the step of:

varying a speed command to regulate power of said system.

21. (previously presented): The method claimed in claim 19, further comprising the step of:

varying a fuel flow command to regulate speed of said turbine.

22. (previously presented): The method claimed in claim 19, further comprising the step of:

varying a fuel flow command to regulate exhaust gas temperature of said turbine.

23. (previously presented): The method claimed in claim 19, wherein said first and second power inverters are under the control of first and second signal processors, respectively.

24. (previously presented): The method claimed in claim 23, further comprising the step of:

varying a current command associated with said first signal processor to regulate a speed of said turbine.

25. (previously presented): The method claimed in claim 23, further comprising the step of:

varying a current command associated with said second signal processor to regulate voltage of said DC bus.

26. (previously presented): The method claimed in claim 23, further comprising the step of:

varying a current command associated with said first signal processor to regulate voltage of said DC bus.

27. (previously presented): The method claimed in claim 23, further comprising the step of:

providing power from said DC bus in accordance with said second signal processor to provide a constant AC voltage output.

28. (previously presented): The method claimed in claim 23, wherein said plurality of energy components includes an energy storage device, further comprising the step of:

providing power bi-directionally from said energy storage device to regulate voltage of said DC bus.

29. (previously presented): The method claimed in claim 23, further comprising the step of:

providing power from said DC bus in accordance with said second signal processor to provide a constant AC current output.

30. (previously presented): The method claimed in claim 23, further comprising the step of:

varying an AC current command to said second signal processor to regulate a constant turbine EGT.

31. (previously presented): The method claimed in claim 23, wherein said plurality of energy components includes an energy storage device, further comprising the step of:

providing power bi-directionally from said energy storage device to regulate a device state of charge.